



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18

DENVER.

OPTIONAL FORM 29 (7-90)

FAX TRANSMITTAL

of pages = 10

To: DAVE NORBURY

From: ARTURO DURAN

CDH

Phone # 294-1080

Fax # 759-5355

Fax # 294-7557

NPN 7540-01-317-7368

5009-101

GENERAL SERVICES ADMINISTRATION

Ref: 8EWM-FF

~~Mr. Gary Baughman~~

Hazardous Waste Facilities Unit Leader
 Colorado Department of Health
 4300 Cherry Creek Drive South
 Denver, Colorado 80222-1530

Dear Mr. Baughman:

The purpose of this letter is to transmit EPA's comments and those of our contractor (PRC) on the Technical Memorandum (TM) for OU 11. In general, it is EPA's position that the TM needs to be revised to address the attached comments. EPA believes that adequate response to the comments are crucial to perform an effective characterization of the OU 11 area. Therefore, EPA recommends withholding approval of the TM until comments are properly addressed and considered in the development of the new field sampling scheme for OU 11.

Please do not hesitate to contact Arturo Duran of my staff at (303) 294-1080 with any question you may have on this matter.

Sincerely,

Martin Hestmark, Manager
 Rocky Flats Project

Attachment

cc: Joe Schiefelin, CDH
 Bob Birk, DOE
 Arturo Duran

ADMIN RECORD



Printed on Recycled Paper

A-OU11-000079

1/10

Comments on Technical Memorandum for OU 11,
The West Spray Field

Overall this Technical Memorandum suffers from several deficiencies in the Data Quality Objectives (DQOs) and Field Sampling Plan (FSP).

The DQOs presented in this TM are very generic and do not represent specific DQOs for OU 11. The DQOs did not identify specific data needs, types, quality and uses applicable to OU 11. Also, the DQOs did not consider any conclusions resulting from the previous investigations. Therefore, EPA suggests that the DQOs section be substantially revised to include specific information on the DQOs for OU 11.

The FSP included in this TM was developed without considering information from previous investigations. Several investigation efforts were conducted in the past where valuable information was gathered regarding the OU 11. However, the FSP proposes to start from scratch. This is not acceptable to EPA. EPA suggests that data available from previous investigations be carefully reviewed and utilized to the extent possible to develop the new field sampling scheme for OU 11. EPA understands that previous data may not be fully validated. Nevertheless, EPA believes that valuable information exists on the lithology of OU 11 area and the location of potential contaminated areas. Other shortcomings in the FSP such as lack of rationale for location of wells, comparability problems on new data with previous data are detailed in the attached PRC comments.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) prepared this report for the U.S. Environmental Protection Agency (EPA) under contract number 68-W9-0009, Technical Enforcement Support (T.E.S) 12, work assignment number C08092. This report consists of a technical review of the Final Revised Field Sampling Plan and Data Quality Objectives Technical Memorandum for Operable Unit (OU) 11 West Spray Fields (WSF) at the U.S. Department of Energy (DOE) Rocky Flats Plant in Golden, Colorado. This field sampling plan was prepared by EG&G on behalf of the Department of Energy (DOE) in March 1994.

PRC reviewed this document to assist EPA in its evaluation of the adequacy of the proposed sampling activities at OU 11. As part of this review, PRC has evaluated whether the final field sampling plan adequately addresses the verbal comments provided in a telephone conference February 17, 1994. The adequacy of the responses is evaluated in Section 2.0 of this report. The remainder of this review is divided into general and specific comments. General comments pertain to the document as a whole or to multiple sections of the document. Specific comments refer to an individual page, paragraph, table, figure, or appendix of the report. General and specific comments are in Sections 3.0 and 4.0.

The final field sampling plan is more focused than the draft on field sampling because of the elimination of the chemical of concern selection process. Despite the improvement, problems remain with this final version of the field sampling plan. Specifically, the document plans on sampling perched groundwater, but does not demonstrate that perched groundwater will be encountered. Because of this and other technical inadequacies this field sampling plan should be revised before it can be considered a final field sampling plan.

2.0 RESPONSE TO COMMENTS

PRC reviewed the Draft Revised Field Sampling Plan and Data Quality Objectives Technical Memorandum (field sampling plan) for Operable Unit (OU) 11, the West Spray Fields, in February 1994. Comments on the draft version were to be addressed in this final field sampling plan. As requested, the final field sampling plan for OU11 no longer describes the chemical of concern selection process or provides comparisons to applicable or relevant and appropriate requirements (ARAKs) and preliminary remediation goals (PRGs).

Some comments made on the draft field sampling plan were not addressed in the final field sampling plan. Issues that remain outstanding are listed below.

- The executive summary does not accurately summarize the proposed field work.
- A high purity germanium (HPGe) survey is proposed, but has already been conducted. The HPGe survey should not appear as proposed fieldwork.
- Background information on the capabilities of the HPGe system was requested, but was not included.
- Existing HPGe results were not compared to existing surface soil sample analytical results.
- Analyses of soil samples collected in 1988 are inappropriately compared to closure standards. A comparison of data to closure standards is appropriate in a Resource Conservation and Recovery Act (RCRA) facility investigation/remedial investigation (RFI/RI), but not in a field sampling plan.
- Information clearly identifying the location of aquitards and perched water was requested, but was not provided.
- Information regarding the sampling of existing wells as part of the proposed field effort was requested; however, this information was not provided.

3.0 GENERAL COMMENTS

The following comments address general technical inadequacies and inconsistencies in the final field sampling plan.

1. This final field sampling plan proposes that data be collected from media and areas not previously investigated. This newly collected data would be compared to data collected during previous investigations. However, there are differences in the sampling methods used during each investigation. The differences in sampling methods include drilling procedures and screened well intervals (see general comment 3). Also, it is unclear if analytical methods among data sets are identical. The impact of differences in sample collection and analysis should be determined to assure data comparability.
2. One of the objectives of this final field sampling plan is to investigate potential perched water zones in the upper portion of the Rocky Flats Alluvium. The text states that this potential

4

perched zone has not been thoroughly investigated. The final field sampling plan proposes to determine whether these perched water zones exist by installing six soil borings and groundwater monitoring wells. However, lack of historical data regarding these perched water zones makes it difficult to evaluate the adequacy of the proposed sampling of perched groundwater. For example, the text states that groundwater was encountered in previous soil borings; however, except for four wells that are now abandoned, the soil boring number and location or the exact depth groundwater was encountered are not identified. Also, the text states that lithologic data collected during the previous investigations lacked accuracy and detail.

If results from the six proposed boreholes do not locate a perched water zone, additional soil borings and groundwater monitoring wells may be necessary in areas where potential perched water zones were encountered in previous boreholes. A review of previous borelogs should be added to the field sampling plan to determine the depth interval at which perched groundwater would be encountered. Further investigation of these previously perched zones may be necessary. The document should demonstrate the presence of perched water by providing supporting documentation such as borelogs.

3. Groundwater data acquired from existing monitoring wells screened across the entire Rock Flats Alluvium may not be adequate for data comparability because the new wells will not be screened in the same depth interval. It would remain unknown if the existing wells are representative of only the deeper saturated zone at approximately 50 feet below ground surface, or if they are being affected by potential contamination from the perched water zones.

The text states that previous wells screened throughout the entire Rocky Flats Alluvium showed higher levels of contaminants than those screened only in the lower portion of the Rocky Flats Alluvium. However, no subsurface soil samples were collected from tentatively identified perched water zones or from the saturated intervals of these boreholes. Due to the lack of soils data, comparison of potentially contaminated soil or groundwater intervals with screened well intervals is impossible. Either it should be demonstrated that data comparability is possible or the investigation should be expanded to assure current data gaps are filled.

4. The rationale for groundwater monitoring well location selection is not well documented. The following items should be addressed.

- The hydraulic conductivity identified for this area is high. A strong lateral component during infiltration is possible. Wells should be placed downgradient of, as opposed to directly under, spray areas.
- Well 94WSF-4 may be better placed between well 94WSF-1 and well 462 2. This would shorten the distance between wells for lithologic and contaminant correlation and perhaps detect any potential contamination downgradient of Spray Area 1.
- Well 94WSF-2 is proposed to be sited near well 5186 because samples from well 5186 historically contained elevated nitrate/nitrite concentrations. Well 5186 is both outside and upgradient of the WSF. Therefore, well 5186 is not likely to identify contamination from the WSF, nor should it be used as an indication of WSF contamination (see specific comment 6).

4.0 SPECIFIC COMMENTS

1. Page ES-2: The list of proposed fieldwork includes activities that have previously been conducted and excludes some activities that are proposed in the field sampling plan. In particular, the HPGe survey proposed for OU11 has been conducted sitewide at RFP. Also, subsurface sampling is proposed, but is not mentioned in the executive summary's list of proposed fieldwork. These sampling activities should be added to the executive summary.

Rationale: The list of proposed field activities should be complete and accurate.

2. Page 2-5, Second Paragraph: This paragraph discusses mathematical modeling of perched groundwater mounds. The lateral extent of the semipervious layer is not identified. The assumed size of the semipervious layer is needed to demonstrate the practicality of the model. If the model assumes that groundwater underlying the entire WSF is perched, the assumed lateral extent of the semipervious layer should be stated in the text.

Rationale: The lateral extent of semipervious layers determines the location and height of perched groundwater.

60.

3. Page 2-9, Fourth Paragraph: This paragraph discusses step 6 (specify limits on decision errors) of the data quality objective process. The discussion defines Type I and Type II errors, but does not specify limits on errors. Limits should be specified on decision errors since this is the objective of this step.

Rationale: The current discussion is incomplete.

4. Figure 3-1: This map illustrates sample locations from previous investigations. The title of the map should also note that these locations are from previous investigations. Also, not all bedrock and alluvial wells described in the text on page 3-14 are shown on this map. The text states that there are 14 alluvial and three bedrock wells. Figure 3-1 shows only 11 alluvial and two bedrock wells. All wells described should be illustrated on the figure.

Rationale: Figures and text should be consistent.

5. Page 4-3, Third Paragraph and Page 4-10, Second Paragraph: These paragraphs discuss the subsurface soil sampling plan. The text states that 2-foot composite samples will be collected from the ground surface to 30 feet deep. Because an assumption has been made that perched water exists, the distinction of certain lithologic characteristics (such as semipervious layer) from which the samples are to be collected is important. When a semipervious layer, such as clay, is encountered, the sampling protocol should be modified. Discrete samples of semipervious material should be collected.

Rationale: Discrete lithologic sampling will assist in defining the nature of contamination.

6. Page 4-4, Fourth Paragraph: This paragraph discusses nitrate/nitrite levels in samples collected from existing monitoring wells. The text states that nitrate/nitrite levels detected in groundwater samples from three wells (4986, 5186, and B410789) may represent a dilution of shallow (perched) groundwater contamination in the WSF by deeper groundwater from the saturated zone. On Figures 3-1 and 4-2, well 5186 is shown approximately 200 feet upgradient and outside the boundary of OU11. Therefore, the statement that nitrate/nitrite levels in this well result from WSF activities is incorrect. Previously collected data should be reviewed and this discrepancy should be corrected.

Rationale: Upgradient wells should not be affected by WSF activities.

7. Page 4-6. Borehole Location Rationale List: Well WSF-4 is sited near well 0582 because the highest historical detection of nitrate/nitrite in WSF groundwater was detected in a sample from well 0582. No data in this document, such as the hydrogeologic model in Section 2.0 and Figure 2-2 (Nitrate/Nitrite Concentrations in OU11 Alluvial Groundwater 1992), indicate the detection of nitrate/nitrite in well 0582. If the rationale for the placement of well WSF-4 is based on a specific detection in a sample from well 0582, information should be provided regarding the highest groundwater sample detection of nitrate/nitrite.

Rationale: Existing data, used as a justification for well placement, should be provided.

8. Page 4-14. Third Paragraph: This paragraph lists proposed subsurface soil analytes. Nitrates are not included on the analyte list. Nitrates were a constituent of the Solar Ponds water that was applied at the WSF. In addition, nitrate is being analyzed for in surface soil and groundwater. Either nitrates should be added to the analyte list for subsurface soils or the text should explain why nitrates are omitted.

Rationale: Nitrate is a potential contaminant at OU11.

9. Page 5-1. Fourth Paragraph: The text states that trip blanks will be collected for volatile organic compound (VOC) analyses. However, if sufficient water is not encountered in perched zones, samples will not be collected for VOC analyses. Not collecting for VOC analyses eliminates the need for trip blanks. The text should be reworded to state that trip blanks will be included in sample shipments if samples requiring VOC analyses are included.

Rationale: Trip blanks are necessary only if VOCs are included in sample shipments.

10. Page 5-2. Fourth and Fifth Paragraphs: These paragraphs discuss accuracy and precision as determined in the quality assurance/quality control (QA/QC) process. Accuracy and precision are determined by quantitative measurement of QA/QC samples. No values are provided to determine limits of the quantitative measurements of the QA/QC samples. The allowable variances among QA/QC sample results (percent recovery and relative percent difference) should be included.

Rationale: Accuracy and precision are quantitative measurements.

11. Page 5-5, Table 5-1: This table presents field QA/QC sample collection methods. The superscript 2 is incorrectly placed after "for each sampling site." This superscript should be placed at the end of Equipment Rinse Blank, "1 in 20 or 1 per day."

Rationale: Tables should be correct.

12. Page 5-5, Table 5-1: The frequency listed for trip blanks should be changed from "1 in 2:" to "one per shipping container including organic(s) samples."

Rationale: Tables should be correct.

13. Page 5-6, Table 3-2: This table presents sample container, preservation, and holding time. The holding time for nitrates analyses in soil is listed as "as soon as possible." This statement is unclear. An actual holding time should be identified.

Rationale: Holding times are real times.

14. Page B-3, Equations 1 and 4: These equations present the steady state model developed by Brock. Equations 1 and 4 contain the symbols "a" and "c"; however, these symbols are not listed under the definitions of terms. These dimensionless constants should be defined.

Rationale: All listed symbols are needed for understanding the model.

15. Page B-4, Third Paragraph: This paragraph states that the location of the cross section line for the mound profile is shown on Figure 3-2 of this field sampling plan. Figure 3-2 shows the ecological soil sampling scheme. Figure 3-1 is a map of the West Spray Field, but no cross section line is apparent. The correct figure number should be referenced in this paragraph.

Rationale: Text and figures should be consistent.

9

